Complete Summary

GUIDELINE TITLE

Guidelines for care of contact dermatitis.

BIBLIOGRAPHIC SOURCE(S)

Bourke J, Coulson I, English J. Guidelines for care of contact dermatitis. Br J Dermatol 2001 Dec;145(6):877-85. [55 references] PubMed

GUIDELINE STATUS

This is the current release of the guideline.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Contact dermatitis

GUIDELINE CATEGORY

Diagnosis
Management
Treatment

CLINICAL SPECIALTY

Dermatology

INTENDED USERS

Physicians

GUIDELINE OBJECTIVE(S)

To provide evidence based recommendations for the treatment of patients with contact dermatitis

TARGET POPULATION

All patients with contact dermatitis

INTERVENTIONS AND PRACTICES CONSIDERED

Diagnosis

1. Patch testing, including photopatch testing and open patch testing
2. Immediate (type I) hypersensitivity testing
    - Use test
    - Prick test

Interventions/Treatment

1. Substitution of allergen containing product
2. Avoidance of allergen
3. Protective clothing (i.e., gloves)
4. After work creams, soap substitutes, emollients
5. Topical corticosteroids
6. Nickel elimination diet
7. Second-line treatments
    - Psoralen and ultraviolet (UV) irradiation
    - Azathioprine
    - Cyclosporin
    - Grenz rays

MAJOR OUTCOMES CONSIDERED

- Prognosis
- Improvement in symptoms
- Disease remission
- Disease recurrence
- Side effects of treatment
- Incidence of false-positive and false-negative diagnostic test results

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Not stated

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Levels of Evidence

I: Evidence obtained from at least one properly designed, randomized controlled trial

II-I: Evidence obtained from well designed controlled trials without randomization

II-ii: Evidence obtained from well designed cohort or case-control analytic studies, preferably from more than one centre or research group

II-iii: Evidence obtained from multiple time series with or without the intervention. Dramatic results in uncontrolled experiments (such as the introduction of penicillin treatment in the 1940s) could also be regarded as this type of evidence.

III: Opinions of respected authorities based on clinical experience, descriptive studies, or reports of expert committees

IV: Evidence inadequate owing to problems of methodology (e.g., sample size, or length or comprehensiveness of follow-up or conflicts of evidence)

METHODS USED TO ANALYZE THE EVIDENCE

Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Recommendation Grades

A. There is good evidence to support the use of the procedure.
B. There is fair evidence to support the use of the procedure.
C. There is poor evidence to support the use of the procedure.
D. There is fair evidence to support the rejection of the use of the procedure.
E. There is good evidence to support the rejection of the use of the procedure.

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Draft guidelines are edited by the Therapy Guidelines and Audit Sub-committee (TGA) and subsequently returned to the task force for revision. The approved draft version is published in the quarterly British Association of Dermatologists (BAD) newsletter, and all BAD members are given the opportunity to respond, positively or negatively, but hopefully helpfully, within three months of publication. Finalised guidelines are approved by the TGA and the Executive Committee of the BAD and finally published in the British Journal of Dermatology.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

The levels of evidence (I-IV) and strength of recommendation ratings (A-E) are defined at the end of the "Major Recommendations" field.

Definition

The words "eczema" and "dermatitis" are often used synonymously to describe a polymorphic pattern of inflammation that in the acute phase is characterized by erythema and vesiculation and in the chronic phase by dryness, lichenification, and fissuring. Contact dermatitis describes these patterns of reaction in response to external agents, which may be the result of the external agents acting as either irritants, where the T-cell-mediated immune response is not involved, or as allergens, where cell-mediated immunity is involved. Contact dermatitis may be classified into the following reaction types:

1. Subjective irritancy: idiosyncratic stinging and smarting reactions that occur within minutes of contact, usually on the face, in the absence of visible changes. Cosmetic or sunscreen constituents are common precipitants.

2. Acute irritant contact dermatitis: often the result of a single overwhelming exposure or a few brief exposures to strong irritants or caustic agents.
3. Chronic (cumulative) irritant contact dermatitis: this occurs following repetitive exposure to weaker irritants that may be either "wet," such as detergents, organic solvents, soaps, weak acids, and alkalis, or "dry," such as low humidity air, heat, powders, and dusts.
4. Allergic contact dermatitis: this involves sensitization of the immune system to a specific allergen or allergens with resulting dermatitis or exacerbation of pre-existing dermatitis.
5. Phototoxic, photoallergic, and photoaggravated contact dermatitis: some allergens are also photoallergens. It is not always easy to distinguish between photoallergic and phototoxic reactions.
6. Systemic contact dermatitis: seen after the systemic administration of a substance, usually a drug, to which topical sensitization has previously occurred.

In practice, it is not uncommon for endogenous, irritant, and allergic aetiologies to coexist in the development of certain eczemas, particularly hand and foot eczema. It is important to recognize and seek in the history, or by a home or workplace visit, any recreational and occupational factors in irritant and allergic dermatitis.

Who Should Be Investigated?

Patch testing is an essential investigation in patients with persistent eczematous eruptions when contact allergy is suspected or cannot be ruled out (Strength of Recommendation A, Quality of evidence II-ii). A recent prospective study has confirmed the value of a specialist contact clinic in the diagnosis of contact dermatitis. It highlighted the importance of formal training in patch test reading and interpretation, testing with additional series, and prick testing in the investigation of patients with contact dermatitis (A, II-i).

Referral Rate

An approximate annual workload for a contact dermatitis investigation clinic has been suggested to be one individual investigated per 700 of the population served (B, II-ii,), (i.e., 100 patients patch tested for every 70,000 of the catchment population per year).

Diagnostic Tests

Patch Testing

The mainstay of diagnosis in allergic contact dermatitis is the patch test. This test has a sensitivity and specificity of between 70 and 80% (A, II-ii).

Patch testing involves the reproduction under the patch tests of allergic contact dermatitis in an individual sensitized to a particular antigen(s). The standard method involves the application of antigen to the skin at standardized concentrations in an appropriate vehicle and under occlusion. The back is most commonly used principally for convenience because of the area available, although the limbs, in particular the outer upper arms, are also used. A number of

application systems are available of which the most commonly used are Finn chambers. With this system, the investigator adds the individual allergens to test discs that are loaded on to adhesive tape. Two preprepared series of patch tests are available-the TRUE (Pharmacia, Milton Keynes, Bucks, U.K.) and Epiquick (Hermal, Reinbek, Germany) tests. There are few comparative studies between the different systems. Preprepared tests are significantly more reliable than operator-prepared tests (I). There is also some evidence that larger chambers may give more reproducible tests, but this may only apply to some allergens (II-ii) and can be used to obtain a more definite positive reaction when a smaller chamber has previously given a doubtful one. The International Contact Dermatitis Research Group has laid down the standardization of gradings, methods, and nomenclature for patch testing.

Timing of Patch Test Readings

The optimum timing of the patch test readings is probably days 2 and 4. An additional reading at day 6 or 7 will pick approximately 10% more positives that were negative at days 2 and 4 (A, II-ii). The commonest allergens that may become positive after day 4 are neomycin, tixocortol pivalate, and nickel.

Relevance of Positive Reactions

An assessment should be made of the relevance of each positive reaction to the patient's presenting dermatitis. Unfortunately this is not always a simple task even with careful history taking and knowledge of the allergen's likely sources and the patient's occupation and/or hobbies. Textbooks on contact dermatitis are an invaluable resource in this regard (see appendix 2 of original guideline document). A simple and pragmatic way of classifying clinical relevance of positive allergic patch test reactions is: (i) current relevance (the patient has been exposed to allergen during current episode of dermatitis and improves when the exposure ceases); (ii) past relevance (past episode of dermatitis from exposure to allergen); (iii) relevance not known (not sure if exposure is current or old); (iv) cross-reaction (the positive test is due to cross-reaction with another allergen); and (v) exposed (a history of exposure but not resulting in dermatitis from that exposure, or no history of exposure but a definite positive allergic patch test).

Patch Test Series

The usual approach to patch testing is to have a screening series, which will pick up approximately 80% of allergens. Such series vary from country to country. There are two principal standard series, differing between the U.S.A. and Europe. Most dermatologists adapt these series by adding allergens that may be of local importance. The standard series should be revised on a regular basis. (See Table 2 and Appendix 3 of original guideline document).

The patient's own cosmetics, toiletries, and medicaments should be tested at non-irritant concentrations. This usually means "as is" (undiluted product) for leave-on products and dilutions for wash off products. Strong irritants, such as powder detergents, should not be patch tested. Occupational products should also be tested at non-irritant concentrations. The most useful reference source for documented test concentrations and vehicles of chemicals, groups of chemicals, and products is that by de Groot. Guidelines for testing patients own materials can

be found in the Handbook of Occupational Dermatology. However, false positives and false negatives often occur when patch-testing products brought by the patient.

Photopatch Testing

Where photoallergic dermatitis is suspected, photopatch testing may be carried out. Very briefly, the standard method of photopatch testing involves the application of the photoallergen series and any suspected materials in duplicate on either side of the upper back. One side is irradiated with 5 J/cm^2 of ultraviolet (UV) A after an interval (1 or 2 days), and readings are taken in parallel after a further 2 days. The exact intervals for irradiation and the dose of UVA given vary from centre to centre. The British Photodermatology Group is currently conducting a multicentre study to address some of these issues.

Open Patch Testing

The open patch test is commonly used where potential irritants or sensitizers are being assessed. It is also useful in the investigation of contact urticaria and protein contact dermatitis. The open patch test is usually performed on the forearm but the upper outer arm or scapular areas may also be used. The site should be assessed at regular intervals for the first 30 to 60 minutes, and a later reading should be carried out after 3 to 4 days. A repeated open application test (ROAT), applying the suspect agent on to the forearm, is also useful in the assessment of cosmetics, where irritancy or combination effects may interfere with standard patch testing. This usually involved application of the product twice daily for up to a week, stopping if a reaction develops.

Preparation of the Patient

A number of factors may alter the accuracy of patch testing. Principal among these are the characteristics of the individual allergens and the method of patch testing. Some allergens are more likely to cause irritant reactions than others. These reactions may be difficult to interpret and are easily misclassified as positive reactions. Nickel, cobalt, potassium dichromate, and carba mix are the most notable offenders in the standard series. As indicated above, preprepared patch tests are better standardized in terms of the amount of allergen applied and are therefore more reproducible, but are prohibitively expensive in the U.K.

Patient characteristics are also important. It is essential that the skin on the back is free from dermatitis and that skin disease elsewhere is as well controlled as possible. This will help to avoid the "angry back syndrome" with numerous false positives. However, if a patient applies potent topical steroids to the back up to 2 days prior to the test being applied (I) or is taking oral corticosteroids or immunosuppressant drugs, then there is a significant risk of false negative results. It has been claimed that patch testing is reliable with doses of prednisolone up to 20 mg per day but that figure is based on poison ivy allergy, which causes strongly positive patch tests (II-iii). The effect of systemic steroids on weaker reactions has not been assessed but clinical experience would suggest that if the daily dose is no higher than 10 mg prednisolone, suppression of positive patch tests is unlikely. UV light may also interfere with patch test results

but the amount required to do so and the relevant interval between exposure and patch testing are poorly quantified (II-iii).

Testing For Immediate (Type I) Hypersensitivity

Although not strictly a part of assessment of contact dermatitis, this is important particularly in the situation of hand dermatitis. Type I hypersensitivity to natural rubber latex (NRL) may complicate allergic, irritant, or atopic hand dermatitis and may be seen in combination with delayed (type IV) hypersensitivity to NRL or rubber additives. The two skin tests in common use are the prick test and the use test. Prick testing involves an intradermal puncture through a drop of NRL extract. A positive reaction consists of an urticarial weal, which is usually apparent after 15 minutes, although it may take as long as 45 minutes to develop. A positive control test of histamine should also be performed to check the patient does not give a false negative reaction from oral antihistamine ingestion. A negative control prick test with saline should be also be performed to check if the patient is dermographic. The use test involves application of a glove that has been soaked for 20 minutes in water or saline. The prick test is generally favoured over the use test because of reports of anaphylaxis following the latter (A, II-iii). There are also occasional reports of anaphylaxis following prick testing with NRL extract. With the advent of standardized commercially available NRL extracts this risk is probably greatly reduced. Some clinicians may prefer to perform a radioallergosorbent test (RAST) for NRL allergy, as they may not have adequate facilities or training to deal with anaphylaxis; however, the sensitivity and specificity may be less for RAST compared with prick testing. Skin prick and use tests are also useful when investigating protein contact dermatitis in occupations at risk such as chefs or veterinarians.

Intervention and Treatment

Irritant Contact Dermatitis

The management of irritant contact dermatitis principally involves the protection of the skin from irritants. The most common irritants are soaps and detergents, although water itself is also an irritant. In occupational settings other irritants such as oils and coolants, alkalis, acids, and solvents may be important. The principles of management involve avoidance, protection, and substitution, as follows:

Avoidance

In general, this is self-evident. However, a visit to the workplace may be necessary to identify all potential skin hazards.

Protection

Most irritant contact dermatitis involves the hands. Gloves are therefore the mainstay of protection. For general purposes and household tasks, rubber or polyvinyl chloride (PVC) household gloves, possibly with a cotton liner or worn over cotton gloves, should suffice. It is important to take off the gloves on a regular basis, as sweating may aggravate existing dermatitis. There is also some

evidence that occlusion by gloves may impair the stratum corneum barrier function (I). In an occupational setting, the type of glove used will depend upon the nature of the chemicals involved. Health and safety information for handling the chemical should stipulate which gloves ought to be used (see Appendix 4 of the original guideline document). Exposure time is an important factor in determining the most appropriate glove, as so-called "impervious" gloves have a finite permeation time for any particular substance; a glove may be protective for a few minutes but not for prolonged contact (e.g. NRL gloves and methacrylate bone cement).

Substitution

It may be possible to substitute nonirritating agents. The most common example of this is the use of a soap substitute. Correct recycling of oils in heavy industry and reduction, or changing, the biocide additives may help.

Allergic Contact Dermatitis

Detection and avoidance of the allergen is often easier said than done. Again, a site visit may be necessary to identify the source of allergen contact and methods of avoidance. It may be necessary to contact manufacturers of products to determine if the allergen is present. It may also be necessary to contact a number of manufacturers to identify suitable substitutes.

Visiting the Workplace

Visiting the workplace has an important place in the management of contact dermatitis. Apart from identifying potential allergens and irritants, it may be essential in the effective treatment and prevention of contact dermatitis (B, III).

Barrier Creams and After Work Creams?

Barrier creams by themselves are of questionable value in protecting against contact with irritants (I, E). Their use should not be overpromoted, as this may confer on workers a false sense of security and encourage them to be complacent in implementing the appropriate preventative measures.

After-work creams appear to confer some degree of protection against developing irritant contact dermatitis. There are controlled clinical trials showing benefit in the use of soap substitutes and after-work creams in reducing the incidence and prevalence of contact dermatitis (I, A). They should be encouraged and made readily available in the workplace.

Topical Corticosteroids

Topical corticosteroids, soap substitutes, and emollients are widely accepted as the treatment of established contact dermatitis. There is one study demonstrating a marginal benefit of the use of a combined topical corticosteroid/antibiotic combination in infected or potentially infected eczema (C, IV). There is an open prospective randomized trial demonstrating the long-term intermittent use of mometasone furoate in chronic hand eczema (B, I).

Second Line Treatments

Second line treatments such as psoralen ultraviolet (UV), azathioprine, and cyclosporin are probably widely used for steroid-resistant chronic hand dermatitis. There are several prospective clinical trials to support these treatments (A, I). A randomized controlled trial of Grenz rays for chronic hand dermatitis showed a significantly better response with this therapy compared with use of topical corticosteroids (B, I).

Nickel Elimination Diets

There is some evidence to support the benefit of low nickel diets in some nickel-sensitive patients (C, IV).

Summary of Recommendations

1. Patients with persistent eczematous eruptions should be patch tested (A, II-ii).
2. A suggested annual workload for a patch test clinic serving an urban population of 70,000 is 100 patients patch tested (B, II-iii).
3. Patients should be patch tested to at least an extended standard series of allergens (A, II-ii).
4. An individual who has had training in the investigation of contact dermatitis prescribes appropriate patch tests and performs day 2 and day 4 readings in patients undergoing diagnostic patch testing (A, II-i).

Definitions:

Levels of Evidence

I: Evidence obtained from at least one properly designed, randomized controlled trial

II-I: Evidence obtained from well designed controlled trials without randomization

II-ii: Evidence obtained from well designed cohort or case-control analytic studies, preferably from more than one centre or research group

II-iii: Evidence obtained from multiple time series with or without the intervention. Dramatic results in uncontrolled experiments (such as the introduction of penicillin treatment in the 1940s) could also be regarded as this type of evidence.

III: Opinions of respected authorities based on clinical experience, descriptive studies, or reports of expert committees

IV: Evidence inadequate owing to problems of methodology (e.g., sample size, or length or comprehensiveness of follow-up or conflicts of evidence)

Recommendation Grades

A. There is good evidence to support the use of the procedure.
B. There is fair evidence to support the use of the procedure.
C. There is poor evidence to support the use of the procedure.
D. There is fair evidence to support the rejection of the use of the procedure.
E. There is good evidence to support the rejection of the use of the procedure.

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for selected recommendations (see "Major Recommendations").

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Consistent and high level of treatment for patients with contact dermatitis

POTENTIAL HARMS

- There is also some evidence that occlusion by gloves may impair the stratum corneum barrier function.
- Some allergens may cause irritant reactions in sensitivity testing.
- False-positive and false-negative results often occur with patch-test products brought by the patient.
- There is a risk of false-negative results in patients who apply topical steroids or take oral corticosteroids or immunosuppressants prior to a patch test.
- The prick test is generally favoured over the use test for type I hypersensitivity, because of reports of anaphylaxis following the latter. There are also occasional reports of anaphylaxis following prick testing with natural rubber latex extract.

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

- These guidelines, prepared on behalf of the British Association of Dermatologists, reflect the best published data available at the time the report was prepared. Caution should be exercised in interpreting the data; the results of future studies may require alteration of the conclusions or recommendations in this report. It may be necessary or even desirable to depart from the guidelines in the interests of specific patients and special circumstances. Just as adherence to the guidelines may not constitute defence against a claim of negligence, so deviation from them should not be necessarily deemed negligent.

- It is important that these guidelines are used appropriately in that they can only assist the practitioner and cannot be used to mandate, authorise, or outlaw treatment options. Of course it is the responsibility of the practising clinician to interpret the application of guidelines, taking into account local circumstances.
- Guidelines are inherently a fluid, dynamic process and will be updated on the British Association of Dermatologists (BAD) Web site on a regular basis.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

Potential Audit Points

1. Aim for a minimum patch test rate for an urban population of 1 per 700 members of the population.
2. Supply patient information sheets (available from the British Contact Dermatology Group [BCDG]).
3. Reference books and journals on occupational and contact dermatitis should be available.
4. A dedicated patch test area for storage (refrigerator) and preparation of allergens should be available.
5. A dermatologist or other individual who has been trained in the investigation of contact dermatitis prescribes appropriate patch tests and performs a day 2 and 4 reading in all patients undergoing patch testing.
6. Patch testing should be performed using an extended standard series such as the BCDG extended standard series.
7. Additional series of allergens are essential to investigate allergies to:
    a. Cosmetics and other agents in contact with the face
    b. Medicaments, including corticosteroids and antimicrobials

IMPLEMENTATION TOOLS

Audit Criteria/Indicators

For information about availability, see the "Availability of Companion Documents" and "Patient Resources" fields below.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better
Living with Illness

IOM DOMAIN

Effectiveness
Patient-centeredness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Bourke J, Coulson I, English J. Guidelines for care of contact dermatitis. Br J Dermatol 2001 Dec;145(6):877-85. [55 references] PubMed

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2001 Dec

GUIDELINE DEVELOPER(S)

British Association of Dermatologists

SOURCE(S) OF FUNDING

British Association of Dermatologists

GUIDELINE COMMITTEE

British Association of Dermatologists Therapy Guidelines and Audit Subcommittee

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

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FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) from the British Association of Dermatologists Web site.

AVAILABILITY OF COMPANION DOCUMENTS

The following is available:

- Griffiths CE. The British Association of Dermatologists guidelines for the management of skin disease Br J Dermatol. 1999 Sep;141(3):396-7.

Electronic copies: Available in Portable Document Format (PDF) from the British Association of Dermatologists Web site.

PATIENT RESOURCES

None available

NGC STATUS

This NGC summary was completed by ECRI on April 25, 2005. The information was verified by the guideline developer on June 27, 2005.

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